

REMARKS

Claims 1-19 are pending. Claims 1-4, 11, 12, 17, and 18 have been rejected under 35 U.S.C. §102. Claims 1-4, 11-13, and 18 have been rejected under 35 U.S.C. §103. Claim 16 has been objected to as being of improper dependent form. Claims 5-10, 14, 15, and 19 have been objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. Claim 16 has been amended to correct the claim form. Claims 1-19 remain for consideration upon entry of the present Amendment. No new matter has been added.

The Examiner has required a new declaration because the date listed for the parent application 10/415,173 is not consistent with the date in the PTO records. The Examiner alleges that the filing date of the 10/415,173 application should be changed to February 9, 2004. Applicants submit herewith a new declaration executed by the inventors in which the proper filing date is reflected.

The Examiner has objected to claim 16 as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. In particular, the Examiner points out that claim 16 depends from claim 25, which is not present in the application, and has required correction. Applicants have amended claim 16 to properly depend from claim 5. Accordingly, Applicants respectfully request that the Examiner withdraw the objection to claim 16.

The Examiner has objected to claims 5-10, 14, 15, and 19 as being dependent upon a rejected base claim, but has indicated that those claims would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants appreciate the Examiner's indication of allowable subject matter but believe that the subject matter of claim 1 is novel and not obvious in view of the cited references. Applicants therefore have opted to not amend claim 1 by incorporating any of the subject matter of the allowable claims and respectfully request reconsideration.

Claims 1-4, 11, 12, 17, and 18 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 2,958,461 to Peltzer, Sr. (hereinafter "Peltzer"). Applicants respectfully request reconsideration.

Claim 1 of the present application recites a centrifugal separator for freeing a fluid from particles suspended therein, the particles having a density greater than that of the fluid, the centrifugal separator comprising a rotor rotatable about a rotational axis; means for rotating the rotor about the rotational axis; a plurality of separation discs arranged coaxially with the rotational axis and which delimit separation disc flow passages therebetween for through flow of the fluid; and a spring element to compress the plurality of separation discs in the direction of the rotational axis.

Peltzer is directed to centrifuges adapted for continuous separation and discharge of solid components from a fluid feed material containing suspended solids and, more particularly, to continuous return circuit centrifuges in which part of a separated underflow is continuously returned into the centrifuge rotor for redischage through underflow nozzles for efficient recovery of solubles of liquid fed through a feed orifice as well as separation of solids. In one embodiment of such a centrifuge, the rotor is disposed in a housing and is carried by a vertical shaft, which is in turn connected by a coupling to a vertical drive shaft. The rotor is made up of upper and lower frusto-conical bowl parts that are fitted together and held in assembled relationship by a threaded lock ring. The upper and lower frusto-conical bowl parts are formed to provide the inner separating chamber having upper and lower conical outer wall sections converging outwardly from the axis of rotation to bowl discharge nozzles. A conical sleeve-like member is positioned within the frusto-conical bowl parts, and exterior ribs extend from the member to maintain a spaced relationship with the upper bowl part to permit the flow of material. A stack of spaced conical-shaped separating discs located by the ribs have outer horizontal discharge lips that provide a settling or separating region or zone surrounding the feed orifice and the outer edges of the discs for separation of the solids from the feed and for separation of the feed from the return. Guide rods urged downwardly by a compression spring facilitate assembly of the centrifuge.

Peltzer fails to disclose, teach, or suggest a centrifugal separator in which a spring element compresses a plurality of separation discs, as in claim 1. The guide rods are

urged by the spring, as explicitly stated in Peltzer, to facilitate assembly of the machine, and the bowl parts that house the stack of discs are held together by a threaded lock ring. Thus, because the spring in the Peltzer device facilitates the assembly and because the discs are located in bowl parts that are held together using a lock ring, the spring in Peltzer does not compress the separation discs as recited in claim 1 of the present application. Applicants respectfully assert that a spring element that compresses a plurality of separation discs, as recited in claim 1, is patentably distinct from an arrangement in which bowl parts housing separation discs are held together by a lock ring, as in Peltzer.

To anticipate a claim under 35 U.S.C. §102, a single reference must disclose each and every element of the claimed invention. Absence from the reference of any claimed element negates anticipation. Because Peltzer fails to disclose, teach, or suggest a spring element that compresses a plurality of separation discs, claim 1 is not anticipated by the Peltzer reference. For at least this reason, claim 1 is allowable, and Applicants respectfully request that the Examiner withdraw the rejection of claim 1.

Dependent claims, by definition, further define the subject matter of the independent claims from which they depend. Because claims 2-4, 11, 12, 17, and 18 depend from claim 1, claims 2-4, 11, 12, 17, and 18 add recitations that further define the subject matter of independent claim 1. Because claim 1 is believed to be allowable for at least the reasons presented above, claims 2-4, 11, 12, 17, and 18 are therefore also believed to be allowable. Consequently, Applicants respectfully request that the rejections of claims 2-4, 11, 12, 17, and 18 be withdrawn.

Claims 1-4, 11-13, and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,234,716 to Sevin et al. (hereinafter "Sevin") taken together with Peltzer. The Examiner alleges that Sevin teaches a centrifugal separator for freeing a fluid from particles suspended therein, the centrifugal separator comprising a rotor rotatable about a rotational axis, means for rotating the rotor, and a plurality of separation discs. The Examiner notes that Sevin is silent as to a spring element to compress the separation discs in the direction of the rotational axis. The Examiner further alleges that Peltzer teaches a centrifugal separator comprising a rotor that is rotatable about a rotational axis, means for rotating the rotor about the axis, a plurality of

separation discs arranged coaxially with the rotational axis, and a spring element to compress the separation discs in the direction of the rotational axis. The Examiner then alleges that it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a spring element for the apparatus of Sevin in order to maintain the spacing of the separation discs of the rotor during a pressurized separation step.

The teachings of claim 1 are presented above.

Sevin is directed to a separator for separating dust or other fine solid or liquid particles from gases in which the particles are suspended. Such a separator comprises a cylindrical casing to which a hopper and an electric motor are secured. The motor drives a shaft of an impeller. A centrifugal fan is rigidly secured to the shaft. The outlet for the fan is constituted by a lateral nozzle having a control valve. Frusto-conical plates are stacked around the shaft, the plates being separated from one another by cross-pieces which thereby define spaces between the plates. Apertures in the peripheries of the plates define vertical chimneys. A supply nozzle for supplying gas for treatment extends through the wall of the hopper. Dusty gases are introduced through the supply nozzle with the fan rotating. The rotation of the fan produces suction in the spaces between the edges of the plates and produces a flow toward the lateral nozzle. In the operation of the separator, particles of dust are entrained by the gas flow into the chimneys. The particles are thus directed outward and accumulate below each plate. The cleaned gas flows between the plates toward the common center space and toward the fan where it is discharged through the lateral nozzle.

The teachings of Peltzer are presented above.

Claim 1 recites a centrifugal separator in which a spring element compresses a plurality of separation discs. Neither Sevin nor Peltzer disclose, teach, or suggest a centrifugal separator in which a spring element compresses a plurality of separation discs. As stated by the Examiner, Sevin is silent as to a spring element. In Peltzer, as stated above, the spring facilitates the assembly of the device and the separation discs are located in bowl portions that are held assembled using a lock ring.

Furthermore, the combination of Sevin with Peltzer also fails to disclose, teach, or suggest a centrifugal separator in which a spring element compresses a plurality of separation discs, as recited in claim 1. In particular, because Sevin does not teach a

spring and because the spring of Peltzer merely facilitates assembly while the discs are located in bowl portions held together using a lock ring, the combination of Sevin and Peltzer would result in an arrangement in which a compression spring is again used to facilitate assembly and in which the discs are held in bowl portions held together with a lock ring. Combining the references in such a manner, therefore, would not result in a centrifugal separator in which a spring element compresses separation discs.

To establish a prima facie case of obviousness for a claimed invention, all the claim limitations must be taught or suggested by the prior art. Because neither Sevin nor Peltzer, individually or in combination, disclose, teach, or suggest what Applicants recite in their amended claim 1, viz., a centrifugal separator in which a spring element compresses separation discs, neither Sevin nor Peltzer, individually or in combination, teach all of the claim recitations of Applicants' invention. Consequently, because not all of the claim recitations are taught by the cited references, Applicants' amended claim 1 is necessarily non-obvious, and Applicants respectfully request that the Examiner withdraw the rejection of claim 1.

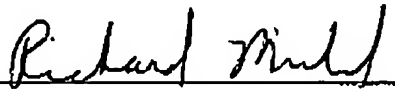
Claims that depend from a claim that is non-obvious are themselves necessarily non-obvious. Because claims 2-4, 11-13, and 18 depend from claim 1, and because claim 1 is asserted to be non-obvious for the reasons presented above, claims 2-4, 11-13, and 18 are necessarily non-obvious. Applicants, therefore, respectfully submit that claims 2-4, 11-13, and 18 are allowable. Accordingly, Applicants respectfully request that the rejections of claims 2-4, 11-13, and 18 be withdrawn.

Applicants believe that the foregoing amendments and remarks are fully responsive to the Office Action and that the claims herein are allowable. In view of the foregoing points that distinguish Applicants' invention from those of the prior art and render Applicants' invention novel and non-obvious, Applicants respectfully request that the Examiner reconsider the present application, remove the rejections, and allow the application to issue.

If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is invited to telephone the undersigned.

Applicants believe that no fees are due with the submission of this Amendment.
If any charges are incurred with respect to this Amendment, they may be charged to
Deposit Account No. 503342 maintained by Applicants' attorneys.

Respectfully submitted,

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